COL724 Report

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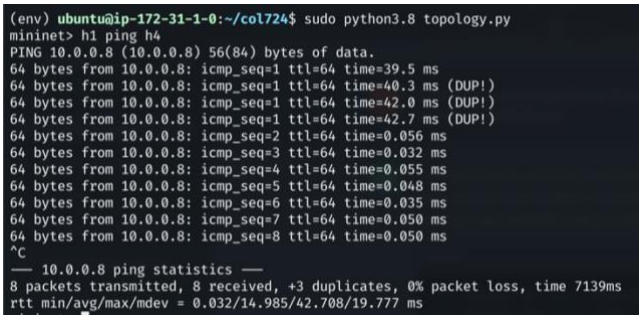
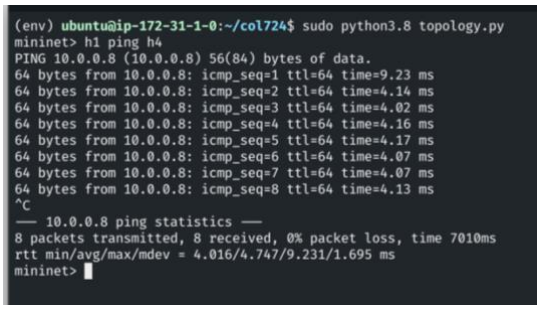
1. The below screenshot is for the learning switch and controller hub



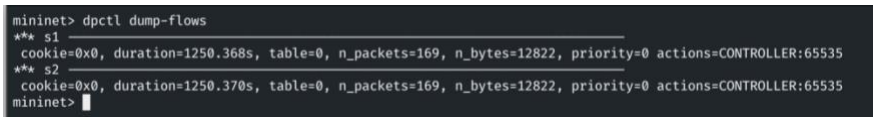


The difference between controller hub and learning switch is
Hub Controller:

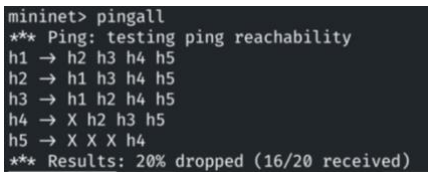
- Broadcasts incoming packets to all ports.
- Highly inefficient and causes network congestion.
- Does not perform MAC address learning.
- Rarely used in modern networks.

Learning Switch:

- Forwards packets to specific ports based on MAC address.
- Efficient and reduces unnecessary traffic.
- Learns MAC address-to-port mappings.
- Widely used in modern Ethernet networks for better performance.



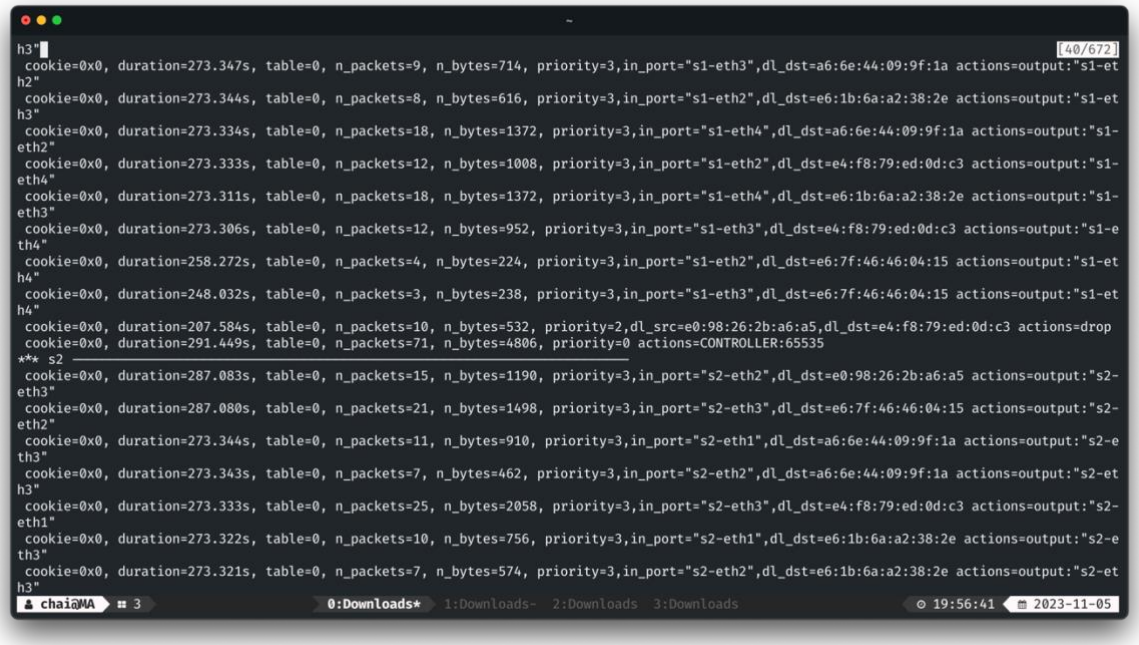
2. Pingall in this case blocks the communication between h1-h4 , h2-h5, h3-h5. Also,



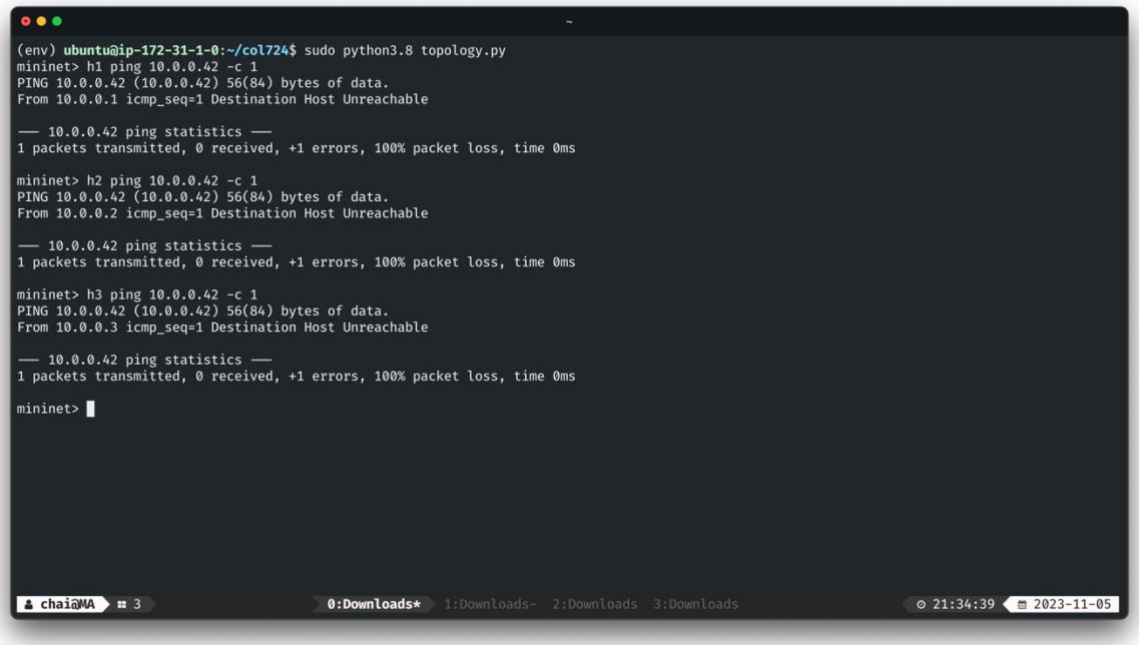
Ways to minimize firewall rules:

- Aggregation of similar rules.
- Default actions for common behaviors.
- Wildcard matches for broader traffic coverage.
- Prioritize specific rules with higher priorities.
- Use multiple tables for efficient rule processing.
- Implement stateful firewalls.
- Automation for dynamic rule management.

The rules can be dumped by dpctl dump-flows



3. Below is the image where h1, h2 , h3 ping the 10.0.0.42 server.



To implement load balancing considering server load:

1. Monitor server performance metrics.
2. Define load balancing criteria (e.g., CPU usage, latency).
3. Implement dynamic load balancing logic.
4. Set load thresholds and auto-scaling policies.
5. Include fallback mechanisms for overloaded servers.